Dec. 2 1952 C. B. KINLEY 2,620,098

BOTTLE CAP WITH OUTLET MEANS AND HAVING A RESILIENTLY SUPPORTED CLOSURE MEMBER

Filed July 12, 1950

FIG. 1.

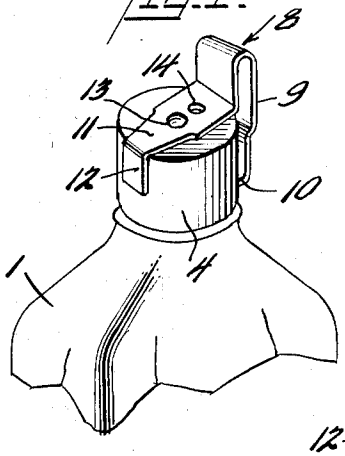


FIG. 2.

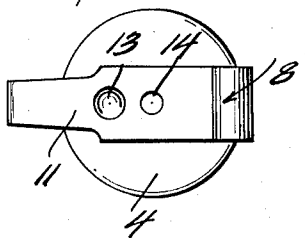


FIG. 3.

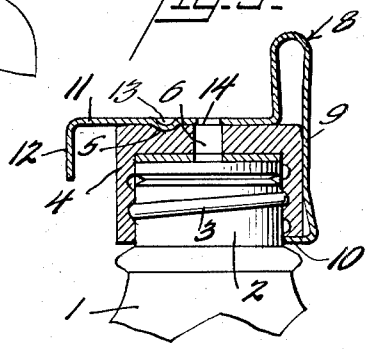


FIG. 4.

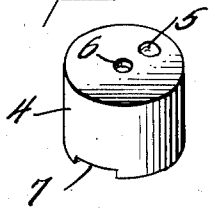


FIG. 6.

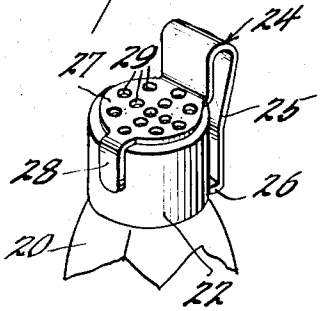


FIG. 5.

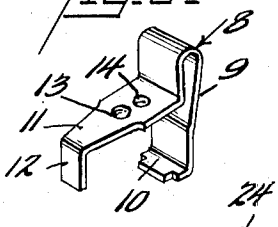


FIG. 8.

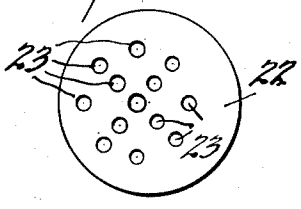


FIG. 10.

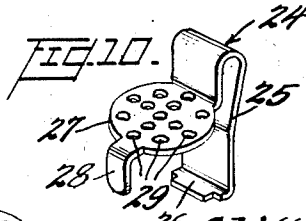


FIG. 7.

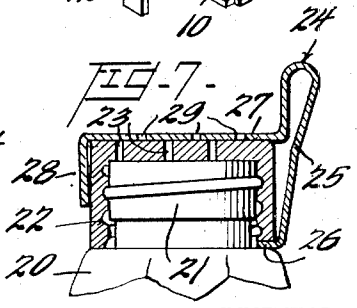
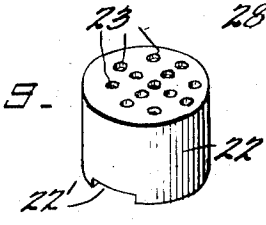


FIG. 9.



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Patented Dec. 2, 1952

2,620,098

UNITED STATES PATENT OFFICE

2,620,098

BOTTLE CAP WITH OUTLET MEANS AND HAVING A RESILIENTLY SUPPORTED CLOSURE MEMBER

Clifford B. Kinley, Falls Church, Va.

Application July 12, 1950, Serial No. 173,461

8 Claims. (Cl. 222—511)

(Granted under the act of March 3, 1883, as amended April 30, 1928; 370 O. G. 757)

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The invention described herein, if patented, may be manufactured and used by or for the Government for governmental purposes, without the payment to me of any royalty thereon.

This invention relates to bottle caps and more particularly to caps which are normally closed but which may be opened by manually pressing a resilient element.

This invention has for its primary object to provide a bottle cap having normally closed outlet ports which may be conveniently opened by pressing a resilient element. While such caps are known in the prior art my invention is an improvement enabling the same to be built more satisfactorily and at lower cost.

A further object of my invention is to provide a bottle cap with a readily removable resilient closing member for the port openings.

Other objects and advantages of the invention will appear as this description proceeds.

Briefly speaking the invention utilizes a conventional bottle cap with outlet holes in the top thereof. A plate normally covers these holes, the plate having a resilient support whereby it may be depressed to an operating position. In this position holes in the plate align with those of the cap to allow passage of material from the bottle. The invention resides in the construction and mounting of the resilient support. This support is held in its normal position solely by its own tension and may be moved to operating position by releasing that tension. Further details are shown in the drawing and hereinafter described, and the invention is defined in the appended claims.

In the drawings:

Figure 1 is a perspective view of one form of the invention. Figure 2 is a top view of the bottle cap of Figure 1, and Figure 3 is a cross-section of the cap when on a bottle. Figure 4 is a perspective view of the cap with the control plate and its resilient support removed, and Figure 5 is a perspective view of the control plate and its resilient support.

Figure 6 is a perspective view of another form of the invention. Figure 7 is a sectional view of the second form. Figure 8 is a top view of and Figure 9 is a perspective view of, the bottle cap of the second form with the control plate and its resilient support removed. Figure 10 is a perspective view of the control plate and its resilient plate (in the second form of the invention).

Referring to Figure 1, a main bottle 1 (which may contain either a liquid, a gas, or a granulated solid) has a first closure member, cap 4 threaded to threads 3 of the bottle 1. The cap 4 has an indent 5 and a main outlet hole 6, the latter being coaxial with the bottle. Cap 4 also has a recess 7 (Figure 4) which constitutes a shoulder for receiving one end 10 of the resilient support 8 and holding it against upward and lateral displacement. The resilient support 8 has a projection at end 10 which fits into recess 7, and also has an upright arm 9. A second closure member, control plate 11, has a first end terminating in end-stop 12 extending down the side wall of cap 4, and an opposite second end connected to resilient support 8. The control plate 11 has an indent 13 which normally covers the hole 6 of the bottle when the resilient arm 9 is not being pressed; a hole 14 in control plate 11 is out of alignment with hole 6 in cap 4, when resilient arm 9 of support 8 is not pressed. Under these conditions the tension in resilient support 8 forces the end-stop 12 into engagement with the side wall of cap 4 (see Figure 1). However, when the operator desires to open the outlet opening 6, he presses the support 8 toward the left (see Fig. 3) until the indent 13 jumps from hole 6 into indent 5; this aligns holes 6 and 14 and permits dispensation of the contents of bottle 1 therethrough. When the operator no longer desires for the bottle to be open he releases tension on support 8 and indent 13 jumps back into opening 6.

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In the modified form of Figure 6 the bottle 20 has threads 21 which carry cap 22, the latter having a pattern of openings 23 through the top thereof. The resilient support 24 has an upright member 25 with a projection 26 adapted to fit the recess 22' of the cap 22. The control plate 27 has a tip 28 which is normally biased against the side wall of cap 22 to hold the plate 27 in the normal closed position. In the closed position (see Figure 7) none of the holes 29 of plate 27 are in alignment with holes 23 of the cap 22. However upon pressing upright 25 to the left Figure 7) each hole 29 moves into alignment with its complementary hole 23. The pattern of the holes 29 in plate 27 is the same as the pattern of the holes 23 in cap 22, hence upon properly depressing upright 25 all of the holes 23 in cap 22 are opened.

The holes 29 are so positioned that when element 25 touches the side wall of the cap, the two patterns of holes are in alignment.

It is understood in connection with both forms of the invention that the control plate is integral with the resilient support and these are of any

suitable resilient material. The material may be a suitable resilient plastic such as is sold under the trade name Plexiglas. In depressing the resilient support the bottle may be held in one hand and the thumb of that hand may exert a force perpendicular to the axis of the opening in the cap, such force being applied about midway between reference numbers 8 and 9 (see Figure 3).

Figure 1 is primarily designed for liquids, and Figure 2 is primarily designed as a salt shaker. In both of these forms of the invention the contents of the bottle are isolated from moisture when the cap is closed by the cover plate.

I claim to have invented:

1. A bottle cap comprising a cup shaped cap portion having internal threads to engage the bottle, said cap defining an opening through the base of the cup, and a flat elongated member having a lip engaging a side wall of the cap with the flat member having its flat surface lying on the outer surface of the base of the cup, said member having a resilient portion connected to said flat member at said base and proceeding generally in a U-shape with the legs of the U generally parallel to the axis of the cup, the free end of the U engaging the side wall of the cap at about 180 degrees around the axis of the cap from said lip and exerting tension against the wall of the cap to hold the flat member in a normal position, said flat member having an opening therein which moves into alignment with the first-named opening when pressure in the direction of the cap is exerted on the leg of the U farthest removed from the cap; and means on said cap portion and on the U-shaped resilient portion of said flat elongated member for preventing relative rotation, said means comprising a recessed portion in the wall of said cap and an inturned projection at the free end of said U-shaped resilient portion interfitting with said recessed portion.

2. The bottle cap of claim 1 in which said flat member is held in position on the cap solely by the tension of said resilient portion.

3. The bottle cap of claim 2 in which the resilient portion and the flat member including said lip, are in one piece.

4. The bottle cap of claim 3 in which the resilient portion and the flat member is a single strip of material.

5. In a closure for containers, a container closure having a side wall including a recessed portion, and an end wall for closing the container, said end wall defining an opening therein; and means for opening and closing said opening comprising: a resilient member of U-shape one of the legs of the U being longer than the other and the long leg having a projection extending into engagement with the recessed portion of the side wall of the container closure, the outer end of the short leg of the U being at the level of the end wall of the closure, a closure member connected to said outer end of said short leg and extending contiguous with a portion the outside surface of said end wall and normally closing said opening, and a lip connected to said closure member at the end thereof remote from said U-shaped member, said lip extending down the side wall of the container closure, said closure member defining an opening therethrough normally out of alignment with the opening in said closure but which aligns with the opening in the closure when the resilient member is depressed.

6. The device of claim 5 in which the longer leg of the U is spaced from the closest point of the top surface of said end wall equal to the spacing between the axes of said openings so that when the long arm is depressed against the side wall of the container the openings are brought into alignment.

7. The device of claim 5 in which said closure member has a raised portion that normally fills said opening in the end wall, said end wall defining an indent spaced from the hole therein by a distance equal to the normal distance between the axes of said holes.

8. A bottle cap comprising a first container closure member having a side wall and an end wall, the end wall defining an opening therethrough, and a second closure member the first end of which passes down the side wall of the first closure member, said second closure member extending contiguous with the outer surface of said end wall and closing said opening, and resilient means connected to the second end of the second closure member and biasing the latter toward said second end, said resilient means having one end connected to said second closure member and its other end pressing against the side wall of the first closure member, the tension in said resilient means being sufficient to hold the same in normal position, said second closure member defining a hole therethrough normally out of alignment with said opening but which aligns therewith when the resilient means is depressed to move the second closure member; and means on said first and second closure members for releasably connecting them and preventing relative rotation thereof, said means comprising a recessed shoulder portion in said first closure member and an inturned projection on the free end of the resilient means connected to said second closure member, said projection interfitting with said recessed shoulder in said first closure member and held by said recessed shoulder against upward and lateral displacement.

CLIFFORD B. KINLEY.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
848,015	Dilworth	Mar. 26, 1907
1,161,718	Nenstiehl	Nov. 23, 1915
1,199,522	Bigoney	Sept. 26, 1916
1,730,870	Wilson	Oct. 8, 1929

FOREIGN PATENTS

Number	Country	Date
471,701	Great Britain	Sept. 9, 1937